

REMARKS

By this Amendment, claims 1, 3 and 10 have been amended. Claims 23-26 have been added. Applicant has amended the currently pending claims in order to expedite prosecution and does not, by this Amendment, intend to abandon subject matter of the claims as originally filed or later presented, and reserves the right to pursue such subject matter in a continuing application. No new matter has been added. Claims 1-13, 15, 16 and 18-26 are pending. Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

Claims 1-12, 15-16 and 18-22 were rejected under 35 U.S.C. § 103(a) based on European Patent Application Publication No. 1020897 to Tanaka (hereinafter “Tanaka”) in view of U.S. Patent No. 6,533,952 to Klebanoff (hereinafter “Klebanoff”). The rejection is respectfully traversed.

Claim 1

Applicant respectfully submits that cited portions of Tanaka and Klebanoff, taken individually or in any proper combination, fail to disclose or render obvious at least a lithographic projection apparatus comprising, *inter alia*, a gas supply control to control said gas supply to control, responsive to a signal from said at least one sensor, a thickness of a layer of hydrocarbon formed on the mirror using the gaseous hydrocarbon, as recited in claim 1. The Office Action admits that cited portions of Tanaka do not disclose any hydrocarbon gas used to control thickness of a layer formed on a mirror. (*See*, e.g. Office Action, page 3, paragraph 3). Further, even assuming that the cited portions of Klebanoff and Tanaka are properly combinable (which Applicant does not concede), the cited portions of Klebanoff fail to overcome the deficiencies of Tanaka. The cited portions of Klebanoff disclose usage of a hydrocarbon, e.g., ethanol, wherein “the growth of graphitic carbon film produced when ethanol was used to provide oxidation protection tends to be self-limiting to a thickness of about 5 Å.” (Klebanoff, column 5, lines 4-7). However, the cited portions of Klebanoff only disclose the thickness of a carbon (“graphitic carbon”) film formed on the surface in Klebanoff. As a consequence, the cited portions of Klebanoff do not disclose or render obvious anything on controlling a thickness of a hydrocarbon layer formed on the mirror using a gaseous hydrocarbon, as recited in claim 1. Accordingly, as the cited portions of Tanaka and Klebanoff fail to disclose or render obvious each and every element of claim 1,

the cited portions of Tanaka and Klebanoff cannot render obvious claim 1 under 35 U.S.C. § 103(a). Therefore, reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of claim 1 based on Tanaka in view of Klebanoff are respectfully requested. Furthermore, as claims 2-9 and 18 depend from claim 1, reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejections of claims 2-9 and 18 based on Tanaka in view of Klebanoff are respectfully requested at least by the virtue of their dependency as well as for the additional recitations therein.

Claim 10

Applicant respectfully submits that cited portions of Tanaka and Klebanoff, taken individually or in any proper combination, fail to disclose or render obvious a method of manufacturing a device using a lithographic projection apparatus comprising, *inter alia*, “controlling an amount of gaseous hydrocarbon supplied to said space to control, in response to the monitoring, a thickness of a hydrocarbon layer formed on the mirror using the gaseous hydrocarbon”, as recited in claim 10. As discussed regarding claim 1, cited portions of Tanaka do not disclose any hydrocarbon gas used to control thickness of a layer formed on a mirror. Further, even assuming that the cited portions of Klebanoff and Tanaka are properly combinable (which Applicant does not concede), the cited portions of Klebanoff fail to overcome the deficiencies of Tanaka. As discussed above with respect to claim 1, the cited portions of Klebanoff only discuss the thickness of a carbon film. The cited portions of Klebanoff do not disclose or render obvious any control of a thickness of a hydrocarbon layer formed on the mirror using a gaseous hydrocarbon, as recited in claim 10.

Accordingly, as the cited portions of Tanaka and Klebanoff fail to disclose or render obvious each and every element of claim 10, the cited portions of Tanaka and Klebanoff cannot render obvious claim 10 under 35 U.S.C. § 103(a). Therefore, reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of claim 10 based on Tanaka in view of Klebanoff are respectfully requested. Furthermore, as claims 11, 12 and 19 depend from claim 10, reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejections of claims 11, 12 and 19 based on Tanaka in view of Klebanoff are respectfully requested at least by virtue of their dependency as well as for the additional recitations therein.

Claims 15 and 20

Applicant respectfully submits that cited portions of Tanaka and Klebanoff, taken individually or in any proper combination, fail to disclose or render obvious a method of

manufacturing a device using a lithographic projection apparatus comprising, *inter alia*, “supplying a gaseous alcohol to a space in a radiation system of the lithographic projection apparatus, which space contains a mirror, wherein the alcohol forms a cap layer on said mirror, wherein the projecting causes sputtering of the cap layer, and wherein the gaseous alcohol is supplied to said space at a pressure sufficient to achieve a thickness of said cap layer which does not increase substantially over time”, as recited in claim 15. As discussed above and admitted at page 3 of the Office Action, the cited portions of Tanaka do not disclose any hydrocarbon gas used to control thickness of a layer formed on a mirror.

Further, even assuming that the cited portions of Klebanoff and Tanaka are properly combinable (which Applicant does not concede), the cited portions of Klebanoff fail to overcome the deficiencies of Tanaka. The cited portions of Klebanoff merely consider chemical and photochemical processes on a mirror surface. The cited portions of Tanaka and Klebanoff are completely silent on sputtering, and consequently do not disclose or render obvious supplying alcohol “to form a cap layer on said mirror, wherein the projecting causes sputtering of the cap layer, and wherein the gaseous alcohol is supplied to said space at a pressure sufficient to achieve a thickness of said cap layer which does not increase substantially over time”, as recited in claim 15.

Indeed, the Office Action does not even rebut Applicant’s arguments on this point made in the Amendments filed August 1, 2006 and December 21, 2006. To the extent that the Office Action asserts that these claimed aspects are known is a taking of official notice or arguing inherency, it is respectfully submitted that the analysis required by MPEP §2144.03 has not been performed nor has any basis in fact and/or technical reasoning been provided, as required by MPEP §2112, to support the determination that these claimed aspects would necessarily result from the disclosure in Klebanoff and/or Tanaka. In addition, Applicant respectfully requests documentary evidence that such aspects are well known or inherent.

Similarly, regarding claim 20, the cited portions of Tanaka and Klebanoff fail to disclose or render obvious a lithographic projection apparatus comprising, *inter alia*, “a gas supply configured to supply a gaseous hydrocarbon to a space containing a mirror; and a gas supply control configured to control supply of the gaseous hydrocarbon to the space to maintain a layer formed on the mirror using the gaseous hydrocarbon at a substantially constant thickness in response to at least sputtering caused during supply of the projection beam”, as recited in claim 20. For similar reasons as presented above, the cited portions of Tanaka and Klebanoff, taken individually or in any proper combination do not disclose or render obvious sputtering caused during the supply of the projection beam, let alone control

of the supply of gaseous hydrocarbon to the space to maintain a layer formed on the mirror using the gaseous hydrocarbon at a substantially constant thickness in response to at least sputtering caused during supply of the projection beam. The Office Action has not properly established that the cited portions of Tanaka and Klebanoff teach such aspects.

Consequently, as the cited portions of Tanaka and Klebanoff fail to disclose or render obvious each and every element of claims 15 and 20, the cited portions of Tanaka and Klebanoff cannot render obvious claims 15 or 20 under 35 U.S.C. § 103(a). Therefore, reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of claims 15 and 20 based on Tanaka in view of Klebanoff are respectfully requested. Furthermore, as claim 16, depends from claim 15, and claims 21 and 22 depend from claim 20, reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejections of claims 16, 21 and 22 based on Tanaka in view of Klebanoff are respectfully requested at least by virtue of their respective dependency as well as for the additional recitations therein.

Claim 13 was rejected under 35 U.S.C. § 103(a) based on Tanaka in view of Klebanoff and further in view of U.S. Patent No. 6,469,785 to Duveneck (hereinafter "Duveneck "). The rejection is respectfully traversed.

Applicant respectfully submits that cited portions of Tanaka and Klebanoff, taken individually or in any proper combination, fail to disclose or render obvious a method of manufacturing a device using a lithographic projection apparatus comprising, *inter alia*, "controlling an amount of gaseous hydrocarbon supplied to said space to control, in response to the monitoring, a thickness of a hydrocarbon layer formed on the mirror using the gaseous hydrocarbon", as recited in claim 10. This failure is not remedied by cited portions of Duveneck which merely disclose a 40 layer high efficiency mirror. As claim 13 depends from claim 10, the cited portions of Tanaka, Klebanoff and Duveneck fail to disclose or render obvious each and every element of claim 13 at least because of the dependency as well as the additional recitation therein. Accordingly, withdrawal of 35 U.S.C. § 103(a) rejections of claim 13 over Tanaka in view of Klebanoff and Duveneck is respectfully requested.

Claims 23-26 depend respectively from claims 1, 10, 15, and 20 and are allowable at least by virtue of their dependency from allowable claims 1, 10, 15, and 20 respectively as discussed above, as well as for additional recitation therein.

All rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 03-3975 under Order No. 081468/282980. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP


JEAN-PAUL G. HOFFMAN

Reg. No. 42663

Tel. No. 703.770.7794

Fax No. 703.770.7901

P.O. Box 10500
McLean, VA 22102
(703) 770.7900